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1 [Tree LANs with collision avoidance: protocol, switch architecture, and simulated performance](#)

T. Suda, S. Morris, T. Nguyen

 August 1988 **ACM SIGCOMM Computer Communication Review , Symposium proceedings on Communications architectures and protocols SIGCOMM '88**, Volume 18 Issue 4

Publisher: ACM Press

 Full text available: [pdf\(1.19 MB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Packet collisions and their resolution create a performance bottleneck in random access LANs. A hardware solution to this problem is to use collision avoidance switches. These switches allow the implementation of random access protocols without the penalty of collisions among packets. We describe the designs of some tree LANs that use collision avoidance switches. The collision avoidance LANs we describe are broadcast star and CAMB tree (Collision Avoidance Multiple Broadcast tree). We next ...

2 [Design and implementation of a prototype optical deflection network](#)

John Feehrer, Jon Sauer, Lars Ramfelt

 October 1994 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Communications architectures, protocols and applications SIGCOMM '94**, Volume 24 Issue 4

Publisher: ACM Press

 Full text available: [pdf\(1.06 MB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe the design and implementation of a packet-switched fiber optic interconnect prototype with a ShuffleNet topology, intended for use in shared-memory multiprocessors. Coupled with existing latency-hiding mechanisms, it can reduce latency to remote memory locations. Nodes use deflection routing to resolve contention. Each node contains a processor, memory, photonic switch, and packet routing processor. Payload remains in optical form from source to final destination. Each host proc ...

3 [Efficient, Unified, and Scalable Performance Monitoring for Multiprocessor Operating Systems](#)

Robert W. Wisniewski, Bryan Rosenberg

 November 2003 **Proceedings of the 2003 ACM/IEEE conference on Supercomputing**

Publisher: IEEE Computer Society

 Full text available: [pdf\(250.19 KB\)](#)

 Additional Information: [full citation](#), [abstract](#)

Programming, understanding, and tuning the performance of large multiprocessor systems is challenging. Experts have difficulty achieving good utilization for applications on large machines. The task of implementing a scalable system such as an operating system or database on large machines is even more challenging. And the importance of achieving good performance on multiprocessor machines is increasing as the number of cores per chip increases and as the size of multiprocessors increases. Cruci ...

4 A new cell loss recovery method using forward error correction in ATM networks

Anna H. Hać, Xiaoyang H. Chu

March 1998 **International Journal of Network Management**, Volume 8 Issue 2

Publisher: John Wiley & Sons, Inc.

Full text available:  [pdf\(342.55 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A new method using an FEC technique is proposed to enhance the ability of consecutive cell loss compensation due to buffer overflow in ATM networks. This article summarizes different applications of cell loss recovery, and presents the design of a new coding scheme and the coding/decoding algorithm. © 1998 John Wiley & Sons, Ltd.

5 Access to a public switched multi-megabit data service offering



F. R. Dix, M. Kelly, R. W. Klessig

July 1990 **ACM SIGCOMM Computer Communication Review**, Volume 20 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(887.77 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Switched Multi-megabit Data Service (SMDS) is a service concept resulting from work at Bell Communications Research. SMDS is a public, packet switched data service that provides LAN-like performance and features over a metropolitan or wide area. It is targeted at the rapidly emerging need for high performance LAN interconnection and deployment is expected in 1991. To meet the early time objectives of SMDS, it was necessary to define the Subscriber-Network Interface (SNI) and to specify the assoc ...

6 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research**

Publisher: IBM Press

Full text available:  [pdf\(4.21 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

7 FDDI- A LAN among MANS



Floyd E. Ross, James R. Hamstra, Robert L. Fink

July 1990 **ACM SIGCOMM Computer Communication Review**, Volume 20 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.25 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

FDDI (Fiber Distributed Data Interface) is a 100 Mbit/sec local area network (LAN) based on a token ring protocol operating over an optical fiber medium. Though not a metropolitan area network (MAN), FDDI can operate over distances normally considered as the province of MANS. With the addition of FDDI-II capabilities, and the newly defined mapping for FDDI over SONET, FDDI now offers MAN functionality for large organizations

needing to provide integrated services over a widely based high perform ...

8 FlowNet

Erann Gat, Mike Ciholas
April 1999 **Linux Journal**

Publisher: Specialized Systems Consultants, Inc.

Full text available:  [html\(15.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)


An Inexpensive High-Performance Network: A look at current state-of-the-art network hardware and protocols with a solution for the slow network problem

9 Draft Proposed: American National Standard—Graphical Kernel System



Technical Committee X3H3 - Computer Graphics
February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue SI

Publisher: ACM Press

Full text available:  [pdf\(16.07 MB\)](#) Additional Information: [full citation](#)

10 An overall network architecture suitable for implementation with either datagram or virtual circuits facilities



Yutaka Matsushita, Mikio Sakuma, Hideki Nishigaki, Nobuyoshi Miyazaki, Isamu Yoshida
July 1978 **ACM SIGCOMM Computer Communication Review**, Volume 8 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(824.57 KB\)](#) Additional Information: [full citation](#), [references](#)

11 A brief overview of ATM: protocol layers, LAN emulation, and traffic management



Kai-Yeung Siu, Raj Jain
April 1995 **ACM SIGCOMM Computer Communication Review**, Volume 25 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(1.01 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Asynchronous Transfer Mode (ATM) has emerged as the most promising technology in supporting future broadband multimedia communication services. To accelerate the deployment of ATM technology, the ATM Forum, which is a consortium of service providers and equipment vendors in the communication industries, has been created to develop implementation and specification agreements. In this article, we present a brief overview on ATM protocol layers and current progress on LAN Emulation and Traffic ...

12 Switcherland: a QoS communication architecture for workstation clusters



Hans Eberle, Erwin Oertli
April 1998 **ACM SIGARCH Computer Architecture News , Proceedings of the 25th annual international symposium on Computer architecture ISCA '98**, Volume 26 Issue 3

Publisher: IEEE Computer Society, ACM Press

Full text available:  [pdf\(1.32 MB\)](#)  Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)
[Publisher Site](#)

Computer systems have become powerful enough to process continuous data streams such as video or animated graphics. While processing power and communication bandwidth of today's systems typically are sufficient, quality of service (QoS) guarantees as required for handling such data types cannot be provided by these systems in adequate ways. We present Switcherland, a scalable communication architecture based on crossbar switches that provides QoS guarantees for workstation clusters in the form of ...

13 ATM Architectures Using Optical Technology: An Overview of Switching, Buffering and Multiplexing

M. Guizani

July 1997 **International Journal of Network Management**, Volume 7 Issue 4

Publisher: John Wiley & Sons, Inc.

Full text available:  pdf(525.89 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

- This overview presents recent studies on photonic switches and discusses the existing different types, such as space-division switches, free-space switches, time-division switches, wavelength division switches, and frequency division switches. The architectures and applications of these switches are also discussed. © 1997 John Wiley & Sons, Ltd.

14 A study of protocol analysis for packet switched network



K. Tsukamoto, T. Itoh, M. Nomura, Y. Tanaka

October 1981 **ACM SIGCOMM Computer Communication Review, Proceedings of the seventh symposium on Data communications SIGCOMM '81**, Volume 11 Issue 4

Publisher: ACM Press

Full text available:  pdf(516.04 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Communication failures may occur because of residual hardware or software implementation flaws, operator errors, transmission noises and transient or permanent machine failures. For packet switched network operation, some means are necessary to detect the errors and to analyze the phenomena to identify the causes of the errors, since, generally, it is almost impossible to predict errors or to implement systems without errors or failures. This paper describes general aspects of co ...

15 Input and output processor for an ATM high speed switch (2.5 Gb/s): the CMC

P. Plaza, J. C. Diaz, F. Calvo, L. Merayo, M. Zamboni, P. Scarfone, M. Barbini

March 1995 **Proceedings of the 1995 European conference on Design and Test**

Publisher: IEEE Computer Society

Full text available:  pdf(574.66 KB)

Additional Information: [full citation](#), [abstract](#)



[Publisher Site](#)

- The design and implementation of an input/output processor for an ATM switch are described. This IC was realized on a 0.7 μm BiCMOS technology. To manipulate ATM cells at a frequency of 311 MHz (STM16) at the I/O of the chip, ECL blocks were employed. The core of the chip is composed of CMOS cells that run at a maximum clock speed of 65 MHz. Pure analog blocks were not needed. The CMC is capable of functioning in two different modes: 1. The CM mode, in which 8 bit wide ATM cells are conveyed ...

Keywords: 0.7 micron, 2.5 Gbit/s, 311 MHz, 65 MHz, 8.2 W, ATM high speed switch, BiCMOS digital integrated circuits, BiCMOS technology, CMC, CPGA-319 pin package, DSP chip, ECL blocks, STM16, asynchronous transfer mode, custom parallel format, digital signal processing chips, electronic switching systems, emitter-coupled logic, input/output processor

16 Network management capabilities for switched multi-megabit data service



David M. Piscitello, Patrick J. Sher

April 1990 **ACM SIGCOMM Computer Communication Review**, Volume 20 Issue 2

Publisher: ACM Press

Full text available:  pdf(831.90 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper discusses network management capabilities for a specific BOC data service, SMDS, and the role that a BOC network providing this service can play in the overall management strategy of a subscriber owned and operated data network. The paper describes user needs for managing the computing equipment and communications services that comprise a data network, and suggests several ways in which a BOC network could offer network management features that complement and are synergistic with the ...

17 Network Protocols



Andrew S. Tanenbaum

December 1981 **ACM Computing Surveys (CSUR)**, Volume 13 Issue 4

Publisher: ACM Press

Full text available: [pdf\(3.37 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



18 xpipes Lite: A Synthesis Oriented Design Library For Networks on Chips

Stergios Stergiou, Federico Angiolini, Salvatore Carta, Luigi Raffo, Davide Bertozzi, Giovanni De Micheli

March 2005 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 2 DATE '05**

Publisher: IEEE Computer Society

Full text available: [pdf\(149.42 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)



The limited scalability of current bus topologies for Systems on Chips (SoCs) dictates the adoption of Networks on Chips (NoCs) as a scalable interconnection scheme. Current SoCs are highly heterogeneous in nature, denoting homogeneous, preconfigured NoCs as inefficient drop-in alternatives. While highly parametric, fully synthesizable (soft) NoC building blocks appear as a good match for heterogeneous MPSoC architectures, the impact of instantiation-time flexibility on performance, power and s ...

19 An experimental distributed switching system to handle bursty computer traffic



W. D. Farmer, E. E. Newhall

October 1969 **Proceedings of the first ACM symposium on Problems in the optimization of data communications systems**

Publisher: ACM Press

Full text available: [pdf\(935.68 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



Data and encoded voice signals differ in certain characteristics which require, if switching is the goal, slightly different approaches. Some of the characteristics of digitized speech and data are compared. This paper describes an operating experimental system (three terminals) which switches messages of variable message length occurring at periodic and aperiodic rates, achieves fast access time, and accommodates bit rate inputs from teletypewriter (110 bits/sec) to disc transfer ...

20 WASS: wireless ATM security system



Danai Patiyoote, S. J. Shepherd

April 1999 **ACM SIGOPS Operating Systems Review**, Volume 33 Issue 2

Publisher: ACM Press

Full text available: [pdf\(491.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)



Recent years have witnessed the rapid growth in demanding for the use of wireless networks especially the one with can transmit all the service. Wireless ATM is the one that fulfil those requirements. Various architectures have been proposed depending on the intended application domain. One of the key components is the security protocol. This paper tries to propose security service into the wireless ATM network.

Keywords: security, wireless ATM

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